Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-6 (cancelled).

Claim 7 (currently amended): A method for screening living cell adhesion on a solid substrate comprising:

a. contacting a living cell with a micro-array comprising a substrate comprising an array of adjacent membrane corrals, wherein the corrals contain lipid bilayer membranes above an aqueous layer, wherein said lipid bilayer membranes are doped with one or more dopants to form a doped lipid bilayer membrane, said dopants selected from the group consisting of charged lipids, ~~membrane proteins,~~ and ~~signaling~~ membrane proteins; and
b. observing cell interaction and adhesion to the doped lipid bilayer membranes after a time period of at least one hour, whereby the dopants direct cell interaction and adhesion, and wherein the cell interaction is a functional and natural interaction.

Claim 8 (currently amended): A method for determining the cell adhesion properties of a living adherent cell, comprising:

a. providing a micro-array device having a plurality of lipid bilayer membranes disposed above an aqueous layer on a solid substrate in corrals separated by a barrier material, said lipid bilayer membranes having different compositions in different corrals, wherein at least one membrane corral comprises a lipid bilayer membrane comprising one or more dopants to direct cell adhesion, wherein said dopants are selected from the group consisting of charged lipids, ~~membrane proteins,~~ and ~~signaling~~ membrane proteins;
b. culturing a population of cells in said micro-array device; and
c. determining the adhesion of the cells to the lipid bilayer membranes in different corrals by observing cell adhesion in response to said lipid bilayer membranes having different compositions, whereby the dopants direct cell adhesion, and wherein the cell adhesion is a functional and natural interaction.

Claim 9 (currently amended): The method according to claim 8, wherein the micro-array device comprises membranes supported by a solid substrate, and wherein one or more of said lipid bilayer membranes are doped with a phosphatidylserine, or a ~~signalling~~ membrane protein selected from the group consisting of ICAM, N-CAM, C-CAM, major histocompatibility complex (MHC) proteins, and MHC peptides~~, selectins and integrins~~.

Claim 10 (previously presented): The method according to claim 9, wherein the solid substrate is separated from the doped lipid bilayer membranes by a water layer.

Claim 11 (original): The method according to claim 10, wherein the substrate is a micropatterned glass wafer.

Claim 12 (original): The method according to claim 11, wherein the membrane is an egg-phosphatidylcholine membrane.

Claim 13 (previously presented): The method according to claim 12, wherein the dopant lipid is selected from the group consisting of phosphatidylserine, dipalmitoylphosphatidic acid, distearoylphosphatidylglycerol, phosphatidylinositol, 1,2-dioleoyl-3-dimethylammonium-propane, 1,2-dioleoyl-3-trimethylammonium–propane, dimethyldioctadecylammonium bromide, 1,2-dioleoyl-sn-glycero-3-ethylphosphocholine, N-(7-nitrobenz-2-oxa-1,3-diazol-4-yl)-1,2-dihexadecanoyl-sn-glycero-3-phosphoethanolamine ammonium salt, and N-1,2-dihexadecanoyl-sn-glycero-3-phosphoethanolmine triethylammonium salt.

Claim 14 (currently amended): An assay to screen and observe differential cell adhesion of living cells to membranes comprising:

a. providing a micro-array of membranes in corrals displayed on a solid substrate having an aqueous layer between the membranes and solid substrate, wherein the corrals contain lipid bilayer membranes comprised of different membrane composition elements of lipids, charged dopant lipids, ~~signaling~~ membrane proteins, and other membrane-associated

molecules, whereby the membrane composition elements retain natural biological activity to thereby direct cell adhesion; then

b. contacting a living cell suspension with the lipid bilayer membranes disposed on the micro-array and allowing a random diffusion of the living cells on the membrane; and
c. observing cell adhesion to the lipid bilayer membranes over a time period.

Claim 15 (original): The assay according to claim 14, wherein the membrane composition elements are sufficiently small to allow the cells to randomly sample many membrane elements before adhering to one.

Claim 16 (previously presented): The assay according to claim 15, wherein the membrane composition elements are approximately 1 micron to approximately 1 millimeter in size.

Claim 17 (previously presented): The assay according to claim 16, further comprising a material separating membrane corrals, thereby permitting a lateral diffusion of membranes only within each corral.

Claim 18 (original): The assay according to claim 17, wherein the micro-array substrate is a micropatterned glass wafer.

Claim 19 (previously presented): The assay according to claim 17, wherein the dopant lipid is selected from the group consisting of phosphatidylserine, dipalmitoylphosphatidic acid, distearoylphosphatidylglycerol, phosphatidylinositol, 1,2-dioleoyl-3-dimethylammonium-propane, 1,2 dioleoyl-3-trimethylammonium–propane, dimethyldioctadecylammonium bromide, 1,2-dioleoyl-sn-glycero-3-ethylphosphocholine, N-(7-nitrobenz-2-oxa-1,3-diazol-4-yl)-1,2-dihexadecanoyl-sn-glycero-3-phosphoethanolamine ammonium salt, and N-1,2-dihexadecanoyl-sn-glycero-3-phosphoethanolmine triethylammonium salt.

Claim 20 (previously presented): The assay according to claim 17, wherein the lipid bilayer membrane is an egg-phosphatidylcholine membrane.

Claim 21 – 24 (Cancelled).

Claim 25 (currently amended): The method according to claim 14, wherein the charged dopant lipids are selected from the group consisting of ~~phosphatidylserine, or a signaling~~ a membrane protein selected from the group consisting of ICAM, N-CAM, C-CAM, major histocompatibility complex (MHC) proteins, MHC peptides, selectins and integrins.

Claim 26 (currently amended): The method according to claim 14, wherein the ~~signaling~~ membrane proteins and other membrane-associated molecules are selected from the group consisting of ICAM, N-CAM, C-CAM, major histocompatibility complex (MHC) proteins, MHC peptides, selectins and integrins.